250 copies multilithed.
For limited public distribution.

U. S. Department of Agriculture - Forest Service
CENTRAL STATES FOREST EXPERIMENT STATION
Columbus, Ohio

Technical Note No. 55 November 1, 1942

The 1941 Production of Black Walnut Lumber in the Corn Belt States 1/

by

L. F. Kellogg
Silviculturist

Black walnut stands out as one of the important timber species in times of war. Although others can serve in the same capacities, none can quite equal or excel it as material for gunstocks. At the same time it is one of the most valuable, both in stumpage and in lumber form of any species, native to the United States, as well as to the Corn Belt States.

The following information on black walnut lumber production has been compiled from sources made available through cooperation with the Bureau of the Census in obtaining the 1941 lumber cut, in seven states, in whole or in part. This State group comprises a very important part but not all of the walnut-producing territory of the United States.

Production

The production of black walnut during 1941 in the Corn Belt States occurred in some 663 out of a total of about 3,850 producing sawmills which reported to the Census. In the following tabulation this production is reported by States, and for comparison, the 1940 production, as reported by the Census, is included. The apparent increase in production, 7,059 M bd. ft., amounts to about 33 percent over the lumber production reported a year ago. (Table 1.)

1/ Assistance with compilation work has been provided by WPA Project No. OP-265-2-42-24. Through that assistance, this report is available at this date. Clearance obtained for release from local Office War Information 10/10/42; and approved for issue by Census Bureau, 10/6/42.

(over)

Table 1. -- Reported production of black walnut lumber in 1940, and in 1941, by States in the Corn Belt

State	Production of Walnut Lumber		
	1940 [1]		1941
	M feet b.m.	Mills	M feet b.m.
Missouri	7,476	49	8,348
Indiana	6,157	224	9,285
Kansas	3,574 [2]	49	5,074
Ohio	3,831	213	3,169
Iowa	222	63	2,072
Illinois	151	50	465
Nebraska	-- [2]	15	57
Total	21,411	663	28,470

[1] Number of mills providing production not available. Official tabulation by Bureau of Census.

[2] Kansas' total included Nebraska's.

The totals for Ohio and Indiana are more reliable than for the other States, because the Central States Forest Experiment Station made a 100 percent canvass of sawmill operations in these States, with the cooperation of the Ohio State Agricultural Experiment Station, the Wayne National Forest, the Purdue University Agricultural Experiment Station, and the Hoosier National Forest. Perhaps 80 percent of all sawmills in Kansas reported either by mail or through Extension-Farm Forester R. C. Johnson. A thoroughgoing mail canvass in the remaining States brought out the production given above. In the foregoing data, both full-time and incidental producers of black walnut lumber are included.

Other large and important production in 1940 occurred in West Virginia (3.7 million), Tennessee (2.87 million), Kentucky (2.7 million), Virginia (1.1 million), and Arkansas (0.9 million board feet).

The Census reports that the total black walnut production in the United States in 1940 was 33,865 M bd.ft. Hence this list of Corn Belt States produced about two-thirds of the Nation's total.

Relative Order of State Production

Based on reported production, Indiana took first place during 1941 in output of walnut lumber in these Corn Belt States. Had it been possible for the Central States Forest Experiment Station to cover all States as it did Ohio, and Indiana, Missouri might have retained first place. As the record stands, Missouri is second, Kansas third, followed by Ohio, Iowa, Illinois and Nebraska.

Higher totals for Indiana and Kansas may have been caused by a more active market and greater war demand, particularly for gunstock blanks, but also in 1941 there was a more thorough canvass of the sawmills themselves. The decline in Ohio's production is unexplained. Apparent increased production in Iowa and Illinois may lie partly in market factors, but unquestionably more thorough field canvass for reports on production was partly responsible for the apparent increase -- particularly in Iowa.

The output of Nebraska would be larger, had logs been sawn locally. It has been reported that from July, 1940 to July, 1941, about 50 carloads, amounting to about 225 M of logs went out by rail and truck from the two southeastern counties in Nebraska to markets in Missouri, Kansas, and maybe Council Bluffs, Iowa.1/ This interstate traffic in walnut logs occurs all through the region, however, so that yearly cut does not necessarily provide an index of local supplies of standing black walnut timber. One walnut lumber dealer in Cincinnati, Ohio, draws only 10 percent of his stock from Ohio. Given consignments of logs for lumber, as well as veneer logs are known to travel long distances in some instances, by either rail or truck.

Centers of Production

Based on reported production, Kansas City, Kansas, stands out as the point of largest single output in the Corn Belt States. Inclusion of Kansas City, Mo., nearby Leavenworth, Kan., and St. Joseph, Mo. might place that locality as the largest walnut-producing center in the Nation.

New Albany, Indiana, in combination with neighboring Jeffersonville, is a good second. The walnut production of firms in Louisville are unavailable at this time and cannot be included to provide a complete picture of production in this particular metropolitan district, but its production is large. St. Joseph, Mo., Piqua, Ohio, Evansville, Ind., and Springfield, Mo., are also large centers of production in the Corn Belt.

Gone are the mills and the standing of Cincinnati, Indianapolis, Des Moines, and other points which at one time stood high in the list.

Days of Operation and Production

Generally speaking, those whose main business is walnut lumber production and who follow that largely to the exclusion of other forest products enterprises, produced most of the 1941 output. Data on continuity of operation, as expressed in days per year, are difficult to obtain. In particular, small operators seem either to have no idea how much time they have devoted to saw-

---

1/ Thirty-four carloads by rail, and sixteen by truck, about a 2:1 ratio of rails to rubber.

milling, or their mill operations have been hopepessly mixed into part-time farming or other business activities. But both large and small operators frequently fail to provide this information on reports to the Census. Summarized on basis of days of mill operation, about a quarter of 1941 walnut lumber cut must be segregated as unknown. (Table 2.)

Table 2.-- Black walnut lumber production, in 1941 in the Corn Belt, by operation classes

Operation class (days per year)	Total production	
	Mills	Volume
	Number	M ft. b.m.
1 - 100	313	1,954
101 - 200	108	5,565
201 - 300	52	11,944
300 & over	3	71
Unknown	187	8,936
Total	663	28,470

It is evident that operators who saw consistently for a considerable portion of the year account for the major production. The three operators in class "301 days and over" apparently are general hardwood lumber producers who sawed a few thousand feet of walnut as part of their production.

Mill Capacity and Production

Major walnut production is related definitely to size or capacity of mill, just as it is to continuity of operation. The larger walnut lumber producers use equipment of higher daily capacity, more labor, and their operation yields more output. They consequently accounted for the largest portion of last year's production. (Table 3.)

Table 3. -- Black walnut lumber production in 1941 in the Corn Belt, by capacity of mills

Capacity of mill (M ft. b.m. per 8-hour day)	Total production	
	Mills	Volume
	Number	M bd.ft.
0.5 - 2.0	173	916
2.5 - 4.0	222	3,140
4.5 - 6.0	78	4,052
6.5 - 8.0	27	2,161
8.5 - 10.0	18	5,253
10.5 - 12.0	5	4,335
12.5 - 14.0	-	-
14.5 - 16.0	4	6,816
16.5 - 18.0	-	-
18.5 - 20.0	3	174
Unknown	133	1,643
Total	663	28,470

When the number of sawmills is considered, we note that small mills of low capacity are far the most numerous, but produced a relatively low proportion of the 1941 output.

The reported "size or capacity" of a mill is a rather indefinite statistic. There is no control over the interpretation placed on this term. Mill owners reporting by mail think it means one thing; clerks, company officials, look at the term in a different light; many are conservative; small mill owners lack labor or logs or both. As a consequence the full potential capacity of a given set of sawmill machinery, be it a "portable" or a"permanent" mill, probably is seldom reported. Rather, the average or usual capacity appears in Census reports, and to that extent the above compilation is an understatement of fact.

On the basis of size of production, the Corn Belt States divide into two groups: (a) States in which the bulk of production occurs in sawmills producing less than 100 M bd.ft. annually. About 78 percent of the walnut lumber produced in Illinois and 100 percent in Nebraska came from these small mills. (b) States in which producers of 100 M bd.ft. or more manufactured over half of the State's production. The other States covered by this report all fell in this division; and in Kansas, Missouri, and Ohio producers of 500 M bd.ft. or more manufactured over half of the States' totals. Thus, the larger mills in Kansas produced 77 percent -

of the reported total; in Missouri, 88 percent; in Ohio, [illegible] and for all States combined, mills producing 500 M and over manufactured 68 percent. Thus mills producing 500 M or more per year were decidedly the dominating factor in the manufacture of black walnut lumber in 1941. (See Table 4.)

The question may be raised how much walnut lumber could be produced by this portion of the sawmill industry, in these Corn Belt States. The question is rather academic because it presupposes (1) adequate woods and mill labor supply (which is shrinking), (2) adequate logs. The walnut business is built on an individual tree or log pickup; assembly of carload lots for shipment to large producers; or cutting of individual trees, as encountered in the woods by logging crews. (3) Good service in getting parts and repairs (which is increasingly difficult); and (4) ready markets.

Brushing aside these uncertainties, and allotting 275 working days per mill, and cutting effective operation down by about 25% for breakdowns, delays, etc., we arrive at, say, 210 working days per annum. The total all-out production for this period and recorded capacities of the sawmills in these States which produced black walnut in 1941 is about 478,000 M feet b.m. This figure, of course, is arbitrary in that, with assumptions 1 to 4 made valid, other sawmills would enter into more active production of walnut lumber (walnut stumpage permitting), thereby swelling the total; and secondly, the likelihood of eliminating all limitations is nil.

Stocks on Hand

The 1941 lumber canvass provided somewhat incomplete information on stocks on hand. Sawmill owners hesitate in some instances to provide the information. Small and incidental producers do not build up stocks. Rather, from their very marginal position, they sell their output as quickly as possible. Again, producers of many kinds of hardwoods at one mill do not state what species are included, or what proportion of their reported total stocks consists of each species. On the other hand, manufacturers who produce walnut lumber predominantly or exclusively probably hold the major stocks. To the extent that they report, the resource on hand is placed on record. (Table 5.)

Table 4. -- Black walnut lumber production in 1941, in the Corn Belt States, by States and by annual production classes

State	Production class (M bd.ft. per year)														
	1 - 49			50 - 99			100 - 499			500 & over			Total		
	Mills	Production		Mills	Production		Mills	Production		Mills	Production		Mills	Production	
	No.	M bd.ft.	Percent	No.	M bd.ft.	Percent	No.	M bd.ft.	Percent	No.	M bd.ft.	Percent	No.	M bd.ft.	Percent
Illinois	47	216	46	2	149	32	1	100	22	-	-	-	50	465	100
Indiana	200	1,391	15	6	284	23	14	2,216	59	4	5,394	3	224	9,285	100
Iowa	59	247	12	-	-	-	3	1,025	49	1	800	39	63	2,072	100
Kansas	42	90	2	2	135	3	3	947	18	2	3,902	77	49	5,074	100
Missouri	39	134	2	1	50	1	4	764	9	5	7,400	88	49	8,348	100
Nebraska	15	57	100	-	-	-	-	-	-	-	-	-	15	57	100
Ohio	209	865	27	1	65	2	2	400	13	1	1,839	58	213	3,169	100
Total	611	3,000	11	12	683	2	27	5,452	19	13	19,335	68	663	28,470	100

Table 5. -- Stocks of black walnut lumber on hand, for two dates, by States in the Corn Belt

State	Total walnut stocks on hand on -	
	Jan. 1, 1941	Dec. 31, 1941
	M. ft.b.m.	M ft.b.m.
Illinois	-	-
Indiana	1,250	763
Iowa	-	275
Kansas	984	759
Missouri	919	448
Nebraska	-	-
Ohio	1,175	1,352
Total	4,328	3,597

Gunstock Blanks

A considerable volume of walnut logs went into gunstock blanks in 1941. This form of utilization was very active in one large plant in Ohio, several in Indiana, one or more in Iowa, several in Missouri, and in Kansas. Information from Kansas indicated that one large producer of walnut blanks was also subletting contracts for blanks to several smaller producers. Gunstock blanks were included as lumber and, because no segregation was made except in one or two instances, no statistics worthy of compilation could be assembled.